A case of pulmonary hydatid cyst, Nonspesific history and atypical chest graphics

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Abstract

Cyst hydatid is a helminthic zoonotic disease caused by Echinococcosis granulosus infestation. It continues to be a major health problem in an inadequate hygienic environment and in areas where veterinary control is not good. The majority of cases live in rural areas. In this study, we aimed to present the diagnosis and the management of a case of a hydatid cyst initially misdiagnosed as malignancy.

Keywords

Cyst Hydatid Disease; Echinococcosis Granulosus; Malignancy

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Introduction

Cyst hydatid disease (CHD) is a parasitic disorder caused by Echinococcus granulosus which is endemic in some parts of the world, particularly in countries where animal husbandry is prevalent. It is most frequently settled in the liver, then the lungs and brain. Rarely, it can also be observed in the soft tissues, the musculoskeletal system, heart, and bladder [1,2].

The prevalence of CHD has been reported to be 1-500 in 100 000 in the world. In Turkey, the prevalence is estimated to be 50 per 100 000. It is commonly seen in all regions of Turkey, particularly in Central Anatolia and Eastern Anatolia region [1].

The diagnosis of CHD is established by anamnesis, imaging techniques, serological tests and microscopic examination. Here, a case with the preliminary diagnosis of which is congenital adenoid malformation or a mass of malignancy in the pleural-pulmonary region, later operated as a cyst hydatid case, is presented to emphasize that the most important step for the diagnosis of the patient applying with nonspecific and/or atypical history and imaging findings is suspecting, and that cyst hydatid disease should be considered in the differential diagnosis of other pulmonary diseases.

Case Report

An 11-year-old female patient applied with the complaint of left chest pain lasting for two days. The chest pain was increased with exertion, and was blunt, occasionally accompanied by a cough and mild fever. There was a loss of about 4 kg body weight within the last one month and a story of syncope one month ago. She had no history of asthma, tuberculosis, early-onset coronary heart disease, or chronic lung disease in the family history. None of the family members were smoking at home, and the house heating was done with the stove burned by wood and turd.

Decreased respiratory sounds were present in the left lung by auscultation in physical examination and expansion of the left lung was reduced, other systemic examinations were normal. The laboratory examinations of the patient are summarized in table 1.

Table 1. Laboratory Parameters

Laboratory parameters	Application	Postoperative
C- Reactive Protein (mg/dL, 0-0,5)	3,44	-
Sedimentation (mm/hour)	26	-
Hemoglobin (GR/dL)	13.96	12.64
White Blood Cell($10e^3$/uL)	9.45	16.66
Platelet count ($10e^3$/uL)	259.1	312
Eosinophil ($10e^3$/uL)	0.071	0.023
Sodium (mmol/L)	139	134
Potassium (mmol/L)	4.1	5.2
Urea (mg/dL)	21	13
Creatinine (mg/dL)	0.65	0.56
Cyst granulosus Ig G	Negative	-

On chest X-ray, the increase of smooth contoured opacity which filled the left hemithorax nearly fully was observed (Figure 1). At the preliminary diagnosis, lobar pneumonia, congenital adenoid malformation, and mass were considered. The patient initially received ceftriaxone 100 mg / kg / day 2x1 and clindamycin 30 mg / kg / day 2x1 as nonspecific treatment. This treatment lasted for 7 days. Despite treatment, there was no change in the size of the image on chest X-ray. For pulmonary hydatid cysts, the location of cysts is crucial to the selection of treatment.

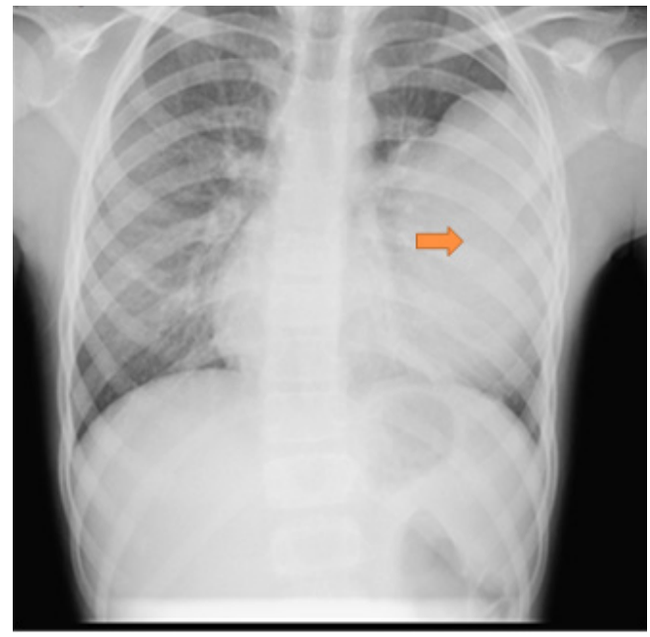

Figure 1. Posteroanterior chest X-ray: sharply demarcated homogeneous radiopacity increment filling middle and lower zones of the left lung.

Surgical drainage of the cyst and capitonnage must be performed for centrally localized cysts, while pericystectomy, endocystectomy, lobectomy, wedge resection or combined medical treatment should be preferred for selected asymptomatic cysts. The number of scolices can be reduced by using these methods for at least 3 months [3,4].

Thorax Computed Tomography (CT) was planned. In thorax CT, a cystic lesion of 6,5x6,3 cm, fissured, based on lateral costal pleura, extending to the mediastinal pleural surface in the upper lobe at the apicoposterior segment of the left lung was revealed (Figure 2).

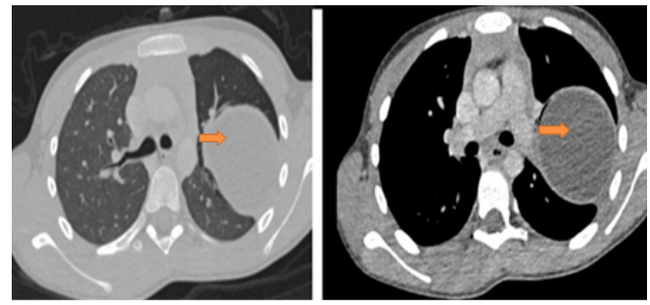

Figure 2. A smooth contouring cystic lesion of 6,5x6,3 cm with a thin wall, fissured, based on lateral costal pleura, extending to the mediastinal pleural surface in the upper lobe apicoposterior segment of the left lung. Air density in the shape of air-crescent in the anteromedial section of the cystic lesion.

The cystotomy and capitonnage operations were performed for diagnosis and treatment. The pathology result of cyst excision material was reported to be compatible with hydatid cyst. Postoperatively, a control chest X-ray was taken in the service follow-ups of the patient; the image showed a rapid recovery in terms of lung cyst hydatid lesion (Figure 3). The patient encountering no complication in the service follow-ups was discharged with daily albendazole and amoxicillin-clavulanate prescriptions.

Discussion

Cyst hydatid is a frequently encountered parasitic disease in Turkey [5]. Approximately one-third of the patients with pulmonary hydatid cysts are asymptomatic at the time of diagnosis. However, large-sized cysts can cause symptoms by compressing the surrounding vital organs or large vessels [6,7].

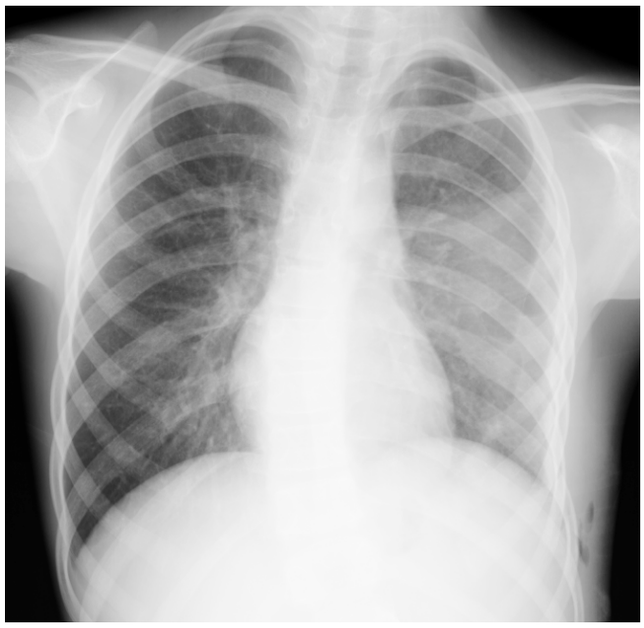

Figure 3. Posteroanterior chest X-ray: increase of irregular opacity is observed in the cyst localization.

A well-received history, a careful physical examination, radiological findings are mostly diagnostic in pulmonary hydatid cyst disease. Conventional chest X-ray is helpful in diagnosis and follow-up, easy to access and perform a cost-effective method [8]. The appearance of the cyst on the chest X-ray is well bordered, homogeneous, and round or oval shape. In addition, the presence of air between the cyst and the lung tissue may lead to the formation of a radiolucent area with an air-crescentic name called meniscus sign [9].

Another imaging method used for diagnosis of cyst hydatid disease is computed tomography (CT). In addition to X-ray findings, in CT information about the primary location of the cyst can be obtained, diaphragmatic defect and rupture, girl vesicles in the lower lobes of the lung may be detected.

Multiple cysts in the lungs can be seen in 1/3 of hydatid cyst cases. These cysts may be unilateral or bilateral, simple, complicated or infected. Even if it is rare, giant cysts can be seen. Therefore, radiological imaging results may be rich and variable [10,11]. The syncope story existing in our case is considered to be a symptom that may occur as the result of giant hydatid cysts compressing the surrounding vital organs and large vessels, but with CT it was understood that the cyst did not undergo large vessel compression. Therefore, the relationship between the syncope story in our patient and hydatid cyst is not clear.

In the diagnosis of patients with chest pain history and especially chest radiograph, cyst hydatid disease should be kept in mind when evaluating in terms of pulmonary parenchymal infections, neoplastic / nonneoplastic mass, and trauma in the differential diagnosis. The holistic health approach based on the principle of studying the unique radiological features in the consultation system with multidisciplinary and related branches is an example of the desired family medicine health practices in the patient's diagnosis, treatment, subsequent follow-up processes.

The primary treatment of pulmonary hydatid cyst is surgical removal of the cyst by maintaining maximum tissue and obliteration of the remaining space. The selection of the surgical technique may vary according to the situation encountered during the operation and the experience of the surgeon. The most commonly used method is cystotomy and capitonnage. Radical lung resection may be needed in consequence of lung parenchyma damage or enlargement of the cyst tract. In addition to these complications, high rate of pleural decortication has been reported (69.8 %). Albendazole is the most frequently preferred drug in medical intervention, as another choice of treatment. It is recommended that the daily dose of 15 mg/kg is given in two divided doses. Another alternative is mebendazole, which is given at a daily dose of 40–50 mg/kg in three divided doses [12]. Cystotomy and capitonnage were performed in our case. Fortunately, complications did not develop.

In conclusion, it should be kept in mind that cyst hydatid may present with nonspecific symptoms at the time of admission and mimic many other pulmonary diseases such as a mass on chest X-ray. Cyst hydatid, a parasitic disease, should not be forgotten in the differential diagnosis of chest pain. Because it is a frequently seen picture in our region and can be doubted by conventional imaging and directed to a definite diagnosis, cyst hydatid disease stands out as a phenomenon that should not be overlooked in primary health care applications. After the diagnosis of hydatid cyst is established, surgical intervention should be performed for necessary cases before complications develop.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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